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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,593	01/16/2002	Charles A. King	NI375-002	4652

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EXAMINER

LAMBERTSON, DAVID A

ART UNIT	PAPER NUMBER
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1636

DATE MAILED: 08/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

BEST AVAILABLE COPY

Office Action Summary

Application No.

10/050,593

Applicant(s)

KING ET AL.

Examiner

David A Lambertson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *detailed action*.

DETAILED ACTION

Claims 1-40 are pending in the application.

Priority

Applicant's claim for domestic priority to provisional application 60/262,241 under 35 U.S.C. 119(e) is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7, 8, 25, 26 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7, 8 and 30 (and all dependent claims) recite a limitation using improper Markush terminology, specifically "...produced by tissue culture or mutagenesis and genetic engineering." From this limitation, it is unclear if applicant is indicate that the production is through tissue culture and genetic engineering or mutagenesis and genetic engineering, or through tissue culture or mutagenesis or genetic engineering, etc. Applicant is reminded that proper Markush terminology should only contain one conjunction following the penultimate member of the Markush group.

Claims 25, 26 and 36 recite limitations of "nitrogen limiting soil under water-deficit conditions." It is unclear what constitutes water-deficit conditions. Does applicant indicate a complete lack of water, or simply conditions that are below average for water content, or something else? Furthermore, it is uncertain at what level the nitrogen levels in the soil become limiting. Again, does applicant indicate conditions where nitrogen content is below average, or are there specific conditions that require consideration? For reasons of compact prosecution, the examiner will consider these limitations to indicate any conditions below the average in terms of both nitrogen and water levels.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-14, 19-24, 27-29, 32-35 and 37-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Loh, et al., US Patent Application 2002/0058327 A1.

Applicant's claims are interpreted as a method for enhancing the nodulation/nitrogen fixing of a leguminous plant comprising using a competitively enhanced rhizobial strain, wherein resistance to the herbicides EPSPS or glutamine synthetase inhibitors is required, and where the

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strain is applied to the seeds or roots of the plant under nitrogen and water limiting conditions. The herbicide may be applied either to the plant or the seeds of the plant, and may be administered at any time relative to the administering of the rhizobial strain. The nature of the plant may be one of several in the family of leguminous plants and the bacterial strain may be one of several species/subspecies, each listed in the claims. Furthermore, applicant claims an herbicide resistant rhizobial strain as described in the aforementioned method, as well as a plant infected by said rhizobial strain.

Loh, et al., describes a method for enhancing nitrogen fixation in legumes using bacterial strains having a competitive advantage over indigenous strains, wherein one such strain is *Bradyrhizobium japonicum* (see abstract, page 2, paragraphs [0017-0019]). These bacterial strains are produced by genetically engineering them via the introduction of nucleic acid mutations or expression cassettes (page 4 paragraph [0045], [0048], page 7, paragraph [0071]) containing selectable markers which include herbicide resistance genes (see page 5, paragraph [0056], page 6-7, paragraph [0069]). Loh, et al., further describes that the strain may be applied to the roots of plants (page 5-6, paragraph [0058]), and that these plants include any leguminous plant, including soybean (page 3, paragraph [0038], page 4, paragraph [0048]). Furthermore, Loh, et al., claims both the resulting genetically modified bacterial cells (page 4, paragraph [0045]) and the plants to which said bacterial cells have been applied (page 5, paragraph [0057]). Concerning claims 19 and 20, absent evidence to the contrary, it is inherent that the herbicide be applied to either the plant or seeds of said plant in order for the herbicide to be effective.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-18, 30 and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Loh, et al., US Patent Application 2002/0058327 A1, in view of Holmes, et al., US Patent No. 6,407,316.

Applicant's invention is interpreted as disclosed above.

Loh, et al., teaches a method for enhancing nitrogen fixation in legumes using bacterial strains having a competitive advantage over indigenous strains, wherein one such strain is a genetically engineered *Bradyrhizobium japonicum* (see abstract, page 2, paragraphs [0017-0019]), containing nucleic acid mutations or expression cassettes with selectable markers which include herbicide resistance genes (page 4 paragraph [0045], [0048], page 7, paragraph [0071], page 5, paragraph [0056], and page 6-7, paragraph [0069])). Loh, et al., does not teach the use of inhibitors such as EPSPS inhibitors as the herbicide for use in the method.

Holmes, et al., teaches the construction of nucleic acids that encode herbicide resistance genes for selection against EPSPS inhibitors, including Glyphosate (see column 2, lines 25-28 and column 3, lines 45-50).

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Loh, et al., is modified by Holmes, et al., to use the nucleic acids that encode herbicide resistance genes for selection against EPSPS inhibitors as selection markers when constructing the genetically engineered rhizobia strain.

The ordinary skilled artisan would have been motivated to combine the teachings of Loh, et al., with those of Holmes, et al., in order to increase the range of herbicides which could act as useful selection markers when constructing herbicide resistant rhizobial strains. It would have been obvious to make the modification because the selectable markers used in the method of Loh, et al., are genes similar to those identified by Holmes, et al., but with different specificity.

Given the teachings of the stated prior art and the level of skill of the ordinary skilled artisan at the time of the applicants' invention, it must be considered that said skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

Allowable Subject Matter

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Lambertson whose telephone number is (703) 308-8365. The examiner can normally be reached on 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel can be reached on (703) 305-1998. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3014 for regular communications and (703) 305-3014 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

David A. Lambertson
August 21, 2002

DAVID GUZO
PRIMARY EXAMINER
